

# OP - SF NET - Volume 15, Number 5 – September 15, 2008

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The Electronic News Net of the  
SIAM Activity Group on Orthogonal Polynomials and Special Functions  
<http://math.nist.gov/opsf/>

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## Today's Topics:

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## Calendar of Events:

### September 15-19, 2008:

SIMAI Congress (Italian Society for Applied and Industrial Mathematics), in  
cooperation with SIAM, Rome, Italy 15.2, #3  
<http://www.simai.eu>

### September 16--20, 2008

International Conference of Numerical Analysis and Applied Mathematics 2008  
(ICNAAM 2008)-Honoring John Butcher on the occasion of his 75th birthday -  
Hotel Kypriotis Village-Kypriotis Panorama-Kypriotis International Conference  
Center, Psalidi, Kos, Greece.  
[http://www.ams.org/mathcal/info/2008\\_sep16-20\\_kos.html](http://www.ams.org/mathcal/info/2008_sep16-20_kos.html)

### September 19--26, 2008

Harmonic Analysis and Approximations, IV (International Conference) -  
Tsaghkadzor, Armenia.  
<http://math.sci.am/conference/sept2008/conf.html>

**October 4-5, 2008:**

AMS Fall Western Section Meeting, Vancouver, Canada, including Special Session on *Special Functions and Orthogonal Polynomials*, organized by Mizanur Rahman and Diego Dominici 15.5 #5

[http://www.ams.org/amsmtgs/2139\\_program\\_ss2.html#title](http://www.ams.org/amsmtgs/2139_program_ss2.html#title)

**October 5--12, 2008**

International Conference on Differential Equations, Function Spaces, and Approximation Theory: Dedicated to the 100th anniversary of the birthday of S. L. Sobolev - Sobolev Institute of Mathematics, Novosibirsk, Russia.

<http://math.nsc.ru/conference/sobolev100/english/>

**October 11-13, 2008:**

International Conference on Applied Mathematics and Approximation Theory honoring P.L. Butzer on the occasion of his 80th birthday, Memphis, Tennessee, USA 15.1 #6

<http://www.msci.memphis.edu/AMAT2008/>

**October 20-22, 2008**

International Conference on Analysis and Its Applications - Aligarh Muslim University, Aligarh, India.

<http://www.amudirectory.com/ICAA08> .

For update information:

<http://ICAA-08.tripod.com>

**November 5-7, 2008**

Fractional Differentiation and its Applications - Ankara, Turkey.

<http://www.cankaya.edu.tr/fda08/>

**December 11-12, 2008**

Special Functions and Quantum Groups, A Symposium in Honor of Tom Koornwinder, University of Amsterdam 15.5, #1

<http://staff.science.uva.nl/~jstokman/SymposiumTom.html>

**December 15-16, 2008**

Rolling Waves in Leuven - a workshop on the occasion of Adhemar Bultheel's 60th Birthday, Leuven, Belgium 15.2, #2

<http://www.cs.kuleuven.be/~raf/ade2008/>

**April 13-25, 2009**

CIMPA-Unesco-Tunisia School "Analytical and Probabilistic Aspects of Dunkl Theory", Monastir, Tunisia 15,5 #6

<http://www.cimpa-icpam.org/Anglais/2009Prog/Tunisia09.html>

**April 19--26, 2009**

NoDIA-2009: Nonlinear Differential Equations, Integrability and Applications - Cape Town, South Africa.

<http://www.sm.luth.se/~norbert/nodia09.html>

**June 8-12, 2009**

Sixth International Conference on Computational Methods and Function Theory,  
Ankara, Turkey. 15.4 #2  
<http://www.bilkent.edu.tr/~cmft/>

**June 25-28, 2009**

International Conference on Applied Analysis and Scientific Computation  
Shanghai Normal University, Shanghai, China 15.5 #4  
<http://mathsc.shnu.edu.cn/conference/index.htm>

**June 29 - July 3, 2009**

Workshop "Discrete systems and special functions", Newton Institute for  
Mathematical Sciences, Cambridge, UK. 15.5 #9  
<http://www.newton.ac.uk/programmes/DIS/ws.htm>

**July 20-24, 2009**

FPSAC'09 -21st Annual International Conference on  
Formal Power Series and Algebraic Combinatorics, Hagenberg, Austria  
15.5 #3  
<http://www.risc.jku.at/conferences/fpsac2009>

**July 20-25, 2009**

10th Symposium on Orthogonal Polynomials, Special Functions and Applications  
(OPSFA-10) , Leuven, Belgium 15.5 #2  
<http://wis.kuleuven.be/OPSFA/OPSFA10.html>

**Topic #1 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF NET Editors

Subject: Symposium in honor of Tom Koornwinder

Title: Special Functions and Quantum Groups

Date: December 11-12, 2008.

Location: Korteweg-de Vries Instituut voor Wiskunde, Universiteit van Amsterdam,  
Plantage Muidersgracht 24, Amsterdam

Organizers: Erik Koelink (RU), Eric Opdam (UvA), Jasper Stokman (UvA), Nico Temme  
(CWI), Jan Wiegerinck (UvA).

The symposium is organized on the occasion of the retirement of Prof.dr. Tom Koornwinder. The lectures on Thursday December 11 are by researchers who have recently been influenced by Tom's groundbreaking work on Special Functions and Quantum Groups. The lectures on Friday morning, December 12, highlight the research areas Tom has been working in and commemorate some of his research achievements. Tom will give his farewell speech *De speciale functie van de wiskunde* on Friday, December 12, 15.00 in the Aula of the UvA, Singel 411, Amsterdam.

Tentative program

Thursday, December 11, 2008

10.30-11.30 Hjalmar Rosengren (Chalmers University of Technology and Gottenburg University, Sweden).

12.00-13.00 Michael Schlosser (University of Vienna, Austria).

14.30-15.30 Uri Onn (Ben Gurion University of the Negev, Israel).

16.00-17.00 Jasper Stokman (Universiteit van Amsterdam).

Friday, December 12, 2008

10.30-11.30 Walter van Assche (Katholieke Universiteit Leuven, Belgium).

12.00-13.00 Erik Koelink (Radboud Universiteit Nijmegen).

15:00: Tom Koornwinder

See the web site:

<http://staff.science.uva.nl/~jstokman/SymposiumTom.html>

Tom was the founding editor of this electronic Newsletter and remains its strongest supporter. We wish him many more years of productive activity.

**Topic #2 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: Walter Van Assche <[Walter.VanAssche@wis.kuleuven.be](mailto:Walter.VanAssche@wis.kuleuven.be)>

Subject: OPSFA-10 in Leuven

The 10th Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA-10) will be in Leuven, Belgium from July 20 to July 25, 2009. The International Scientific Committee consists of Alexander Aptekarev, Richard Askey, Christian Berg, Peter Clarkson, Mourad Ismail, Erik Koelink, Tom Koornwinder, Francisco Marcellan, Paul Nevai, Barry Simon and Galliano Valent. The National Scientific Committee consists of Adhemar Bultheel, Annie Cuyt, Luc Haine, Alphonse Magnus, Arno Kuijlaars, Walter Van Assche and Joris Van der Jeugt. The meeting will be at the Katholieke Universiteit Leuven and the local organisation is done by Walter Van Assche (chair), Adhemar Bultheel and Arno Kuijlaars. The list of plenary speakers will be made available later and registration will start only in 2009. The conference website is <http://wis.kuleuven.be/OPSFA/OPSFA10.html>

**Topic #3 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: Christian Krattenthaler <[kratt@math.univ-lyon1.fr](mailto:kratt@math.univ-lyon1.fr)>

Subject: FPSAC'09 - First Announcement

[This announcement has been shortened - Eds,]

=====  
21st Annual International Conference on  
Formal Power Series and Algebraic Combinatorics  
=====

FPSAC'09

=====  
July 20-24, 2009  
Hagenberg, Austria  
=====

First announcement -- Call for papers

Topics

All aspects of combinatorics and their relations with other parts of mathematics, physics, computer science and biology.

Conference program

Invited lectures, contributed presentations, poster session, problem session and software demonstrations. As usual there will be no parallel sessions.

Official languages

The official languages of the conference are English and French.

Invited Speakers

Alexander Barvinok (University of Michigan, USA)  
Karin Erdmann (University of Oxford, UK)  
Jaroslav Nesetril (Charles University Prague, Czech Republic)  
Bruno Salvy (INRIA Rocquencourt, France)  
Carsten Schneider (RISC, Johannes Kepler University Linz, Austria)  
Frank Sottile (Texas A&M University, USA)  
Volkmar Welker (Philipps University Marburg, Germany)  
Ae Ja Yee (Pennsylvania State University, USA)

Call for papers and posters

Authors are invited to submit extended abstracts of at most twelve pages by November 17, 2008. To submit papers please visit the conference web site

<http://www.risc.jku.at/conferences/fpsac2009>

Author instructions can also be found at the conference website.

Open problem session

Contributions to the problem session are invited in advance of the conference dates. People interested in submitting a problem in advance should submit it via

<http://www.risc.jku.at/conferences/fpsac2009>

before June 30, 2009.

#### Software demonstrations

Demonstrations of software relevant to the topics of the conference are encouraged. People interested in giving a software demonstration should submit through our website before February 20, 2009, a paper briefly explaining the software, and including the hardware requirements.

#### Graduate student papers

In an ongoing FPSAC tradition, an award will be made for the best paper submitted by a graduate student. Students submitting extended abstracts are invited to indicate their eligibility for this award.

#### Participant support

Limited funds are available for partial support of participants, in particular for students, junior scientists and mathematicians from underrepresented groups. Requests should contain a letter of recommendation and include the estimated transportation and living expenses for the duration of the conference as well as the amount of any support available from other sources.

All requests should be sent by March 1, 2009 to an address which we will announce at a later point.

#### Location

The conference will take place at the Research Institute for Symbolic Computation, Johannes Kepler University, Austria.

#### Further information

All important information concerning FPSAC'09 can be found on the conference web site at <http://www.risc.jku.at/conferences/fpsac2009>

More details will be given in future announcements.

#### Summary of important dates

Submission of abstracts: November 17, 2008

Notification of acceptance: February 20, 2009

Requests for support: March 1, 2009

Conference begins: July 20, 2009

### **Topic #4 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: Nico Temme

Subject: Shanghai Conference on Applied Analysis and Scientific Computation

At the "International Conference on Applied Analysis and Scientific Computation", June 25-28, 2009, Shanghai Normal University, Shanghai, China, see <http://mathsc.shnu.edu.cn/conference/index.htm> .

One of the topics is "Asymptotic Analysis". I am investigating whether it will be possible to organize a mini-symposium "Asymptotic Analysis and Special Functions". Please send me an email to [Nico.Temme@cwil.nl](mailto:Nico.Temme@cwil.nl) if you are planning to participate or if you are interested, with possibly a later decision. Please inform other colleagues.

**Topic #5 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF NET Editors

Subject: Program for AMS Special Session

The AMS Fall Western Section Meeting, to be held in Vancouver, Canada, October 4-5, 2008 will include a Special Session on *Special Functions and Orthogonal Polynomials*, organized by Mizanur Rahman and Diego Dominici. See [http://www.ams.org/amsmtg/2139\\_program\\_ss2.html#title](http://www.ams.org/amsmtg/2139_program_ss2.html#title)

Here is the tentative list of speakers and titles. An asterisk indicates the name of the presenter:

An explicit polynomial form of a  $q$ -analogue of the  $9-j$  symbols.  
Mizan Rahman\*, Carleton University

Tridiagonal pairs of  $q$ -Racah type.  
Paul M Terwilliger\*, Math Department, University of Wisconsin-Madison  
Tatsuro Ito, Math Department, Kanazawa University

A nonterminating  $q$ -Dougall summation theorem for hypergeometric series in  $U(n)$ .  
Stephen C Milne\*, The Ohio State University  
Sheldon L Degenhardt, Baltimore, Maryland

Pade Approximation and the Riemann Zeta Function.  
Peter Borwein\*, Simon Fraser University

An efficient algorithm for the Hurwitz zeta and related functions.  
Mark W Coffey\*, Colorado School of Mines

Asymptotic analysis of Hermite-type polynomials.  
Diego Dominici\*, Technische Universität Berlin

Matrix valued orthogonal polynomials and inverse problems for networks.  
F. Alberto Grunbaum\*, Math Dept UC Berkeley

Families of quadratic and cubic hypergeometric transformations.  
Robert S. Maier\*, University of Arizona

Hypergeometric analogues of the Arithmetic-Geometric Mean.  
Roger W Barnard\*, Texas Tech University

Orthogonal polynomials and non-linear difference equations.  
Sarah Jane Johnston\*, University of the Witwatersrand, Johannesburg, South Africa  
Mourad E H Ismail, University of Central Florida, Orlando, Florida, USA

Orthogonal Polynomials and Random Matrices.  
James A. Mingo\*, Queen's University at Kingston

Integral representations for products of some Sturm-Liouville functions.  
Martin E Muldoon\*, York University

Peakons and Cauchy biorthogonal polynomials.  
Jacek Szmigielski\*, Department of Mathematics and Statistics, University of  
Saskatchewan, Saskatoon, Canada

Constrained Spline Smoothing and Applications.  
Kirill A. Kopotun\*, University of Manitoba

## **Topic #6 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF Net Editors  
Subject: CIMPA-Unesco-Tunisia School on Dunkl Theory

CIMPA-Unesco-Tunisia School  
"Analytical and Probabilistic Aspects of Dunkl Theory",  
April 13-25, 2009, Monastir, Tunisia

This information is form the web site:

<http://www.cimpa-icpam.org/Anglais/2009Prog/Tunisia09.html>

Objectives :

The theory of Dunkl had originated with the introduction by Charles Dunkl in 1989 of the Dunkl operators. At the same time, E.M. Opdam and G.I. Heckman and I. Cherednik have introduced similar operators by trigonometric methods. Since then, several mathematicians in the world became interested in this theory from several points of view. In particular, this theory is one of the major themes of research of "the school of harmonic analysis" in Tunisia. Several research studies have been published by Tunisian researchers in this field.

The school aims to provide basic training in basic Dunkl theories of rational and trigonometric setting and present the latest developments of these theories namely associated harmonic analysis, probabilities applications such as random process in the cones, in the chambers of Weyl, .....

The school's goal is to contribute to the promotion of research groups working on the Dunkl theory and propose an opening theme for young researchers and openness to other geographical regions of the world especially Europe, America and Asia by providing the conditions to promote trade and the establishment of collaborations with mathematicians in these regions.

Organizers:

Lotfi Kamoun (University of Monastir, Tunisia), Maher Mili (University of Sousse, Tunisia),  
Ahmed El Soufi (François Rabelais University Tours, France)

Working languages: French and English

Scientific program:

- 1) Khalifa Trimèche (Tunis El Manar University, Tunisia) : Dunkl operators : Harmonic Analysis and Applications.
- 2) Marc Yor (University of Pierre et Marie Curie. Paris VI. France) : Dunkl processes.
- 3) Philippe Bougerol (University of Pierre et Marie Curie. Paris VI. France) : Littelmann path and Brownian motion.
- 4) Bent Orsted (Arhus University . Denmark) : Lectures on Dunkl operators and applications.
- 5) Charles Torossian (University of Denis Diderot. Paris VII. France) : Dunkl operators associated with roots systems.

Prerequisites:

A basic knowledge of classical harmonic analysis, special functions and continuous probability is desirable

Deadline for registration: January 18, 2009

Application procedure and Online registration only for applicants not from Tunisia  
Applicants from Tunisia must contact the local organizer: Lotfi Kamoun  
(kamoun.lotfi@planet.tn)

CIMPA

Le Dubellay, 4 avenue Joachim - Bât. B, 06100 Nice, FRANCE  
For any suggestions mail to: [cimpa@unice.fr](mailto:cimpa@unice.fr)

## **Topic #7 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF NET Editors  
Subject: Death of Anatoly Klimyk

Date: Wed, 23 Jul 2008 19:28:01 +0300  
From: [sigma@imath.kiev.ua](mailto:sigma@imath.kiev.ua)  
Subject: Anatoly Klimyk died on July 22, 2008

Dear Colleagues,

I have the sad duty to inform you that yesterday, on July 22, 2008, Anatoly Klimyk, 69, passed away. Anatoly Klimyk was a member of the Editorial Board of SIGMA, well-known mathematician, Professor.

Anatoly Klimyk was born on April 14, 1939 in the village Ugrynivka, Vinnytsya Region, Ukraine. In 1956 he entered the Department of Physics and Mathematics of Uzhgorod University, and graduated in 1961. In 1961-1964 he worked as a high-school teacher in the village Stavne, Zakarpatsky Region. In 1964-1967 he was a post-graduate student at the Institute of Mathematics and at the Institute of Theoretical Physics of Academy of Sciences of the UkrSSR. In 1967 he defended his thesis for the degree of the Candidate of Sciences (Ph.D.), and in 1982 - the thesis for the degree of the Doctor of Sciences. In 1967-1989 he worked as a Junior, Senior and Leading Researcher of the Institute of Theoretical Physics of AS UkrSSR. From 1989 to April 2008 he was the Head of Department of Mathematical Methods in Theoretical Physics, Institute of Theoretical Physics, National Academy of Sciences of Ukraine.

Anatoly Klimyk was a recognised expert in the area of theory of representations of Lie groups and algebras, modern theory of special functions, mathematical physics and non-commutative geometry.

Some of his most well-known books:

Representations of Lie groups and special functions, Vols. 1-4,  
Kluwer, Dordrecht, 1991-1995 (with N. Ja. Vilenkin)

Quantum groups and their representations, Springer-Verlag, Berlin,  
1997 (with K. Schmudgen)

SIGMA team bewails the untimely death of our colleague.

Anatoly Nikitin  
<http://www.emis.de/journals/SIGMA/>

## **Topic #8 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: Tom Koornwinder  
Subject: Article on updating "Abramowitz and Stegun"

SIAM News, September 2008 has an article  
Updating "Abramowitz and Stegun" (Handbook of Mathematical Functions)  
by Philip J. Davis. This has appeared in the printed version and will appear soon in the  
online version at  
<http://www.siam.org/news/>

**Topic #9 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF Editors

Subject: Cambridge workshop "Discrete Systems and Special Functions"

A workshop "Discrete systems and special functions", will be held at the Newton Institute for Mathematical Sciences, Cambridge, UK, June 29 - July 3, 2009. This is part of a program "Discrete Integrable Systems" to be held at the Newton Institute during the period January 19 to July 3, 2009. See <http://www.newton.ac.uk/programmes/DIS/ws.html>

**Topic #10 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF NET Editors

Subject: Preprints in arXiv.org

The following preprints related to the fields of orthogonal polynomials and special functions were posted or cross-listed to one of the subcategories of arXiv.org during July and August 2008.

<http://arxiv.org/abs/0807.2682>

q-Euler Numbers and Polynomials Associated with Basic Zeta Functions

Authors: [Taekyun Kim](#)

Comments: 9 pages

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.0019>

Zeros of partial sums of the Riemann zeta-function

Authors: [S. M. Gonek](#), [A. H. Ledoan](#)

Comments: 9 pages

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.1351>

Nonsymmetric interpolation Macdonald polynomials and  $g_n$  basic hypergeometric series

Authors: [Alain Lascoux](#), [Eric M. Rains](#), [S. Ole Warnaar](#)

Comments: 30 pages

Subjects: Classical Analysis and ODEs (math.CA); Combinatorics (math.CO)

<http://arxiv.org/abs/0807.1353>

Second structure relation for  $q$ -semiclassical polynomials of the Hahn Tableau

Authors: [R. S. Costas-Santos](#), [F. Marcellan](#)

Comments: Keywords: Finite-type relation; Recurrence relation;  $q$ -Polynomials;  $q$ -Semiclassical polynomials

Subjects: Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0807.4808>

Transformations of algebraic Gauss hypergeometric functions

Authors: [Raimundas Vidunas](#)

Comments: 25 pages

Subjects: Classical Analysis and ODEs (math.CA); Algebraic Geometry (math.AG)

<http://arxiv.org/abs/0807.4888>

Dihedral Gauss hypergeometric functions

Authors: [Raimundas Vidunas](#)

Comments: 25 pages

Subjects: Classical Analysis and ODEs (math.CA); Algebraic Geometry (math.AG)

<http://arxiv.org/abs/0807.0567>

Towards all-order Laurent expansion of generalized hypergeometric functions around rational values of parameters

Authors: [Mikhail Yu. Kalmykov](#) (Hamburg U., Inst. Theor. Phys. II & Dubna, JINR), [Bernd A. Kniehl](#) (Hamburg U., Inst. Theor. Phys. II)

Comments: 48 pages in LaTeX

Subjects: High Energy Physics - Theory (hep-th); High Energy Physics - Phenomenology (hep-ph); Mathematical Physics (math-ph); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0807.1700>

Optimal approximation of harmonic growth clusters by orthogonal polynomials

Authors: [Ferenc Balogh](#), [Razvan Teodorescu](#)

Subjects: Mathematical Physics (math-ph); Statistical Mechanics (cond-mat.stat-mech); Exactly Solvable and Integrable Systems (nlin.SI)

<http://arxiv.org/abs/0807.3712>

Favard, Baxter, Geronimus, Rakhmanov, Szegő and the strong Szegő theorems for orthogonal trigonometric polynomials

Authors: [Zhihua Du](#)

Comments: 11 pages

Subjects: Complex Variables (math.CV)

<http://arxiv.org/abs/0807.3939>

An extended class of orthogonal polynomials defined by a Sturm-Liouville problem

Authors: [David Gomez-Ullate](#), [Niky Kamran](#), [Robert Milson](#)

Comments: 23 pages

Subjects: Mathematical Physics (math-ph); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0807.4087>

Exceptional orthogonal polynomials, exactly solvable potentials and supersymmetry

Authors: [C. Quesne](#)

Comments: 10 pages, no figure, published version ([this http URL](#))

Journal-ref: J. Phys. A: Math. Theor. 41 (2008) 392001 (6pp)

Subjects: Quantum Physics (quant-ph); High Energy Physics - Theory (hep-th);  
Mathematical Physics (math-ph)

<http://arxiv.org/abs/0807.3858>

BC-infinity Calogero-Moser operator and super Jacobi polynomials

Authors: [A.N. Sergeev](#), [A.P. Veselov](#)

Comments: 38 pages

Subjects: Mathematical Physics (math-ph); Quantum Algebra (math.QA)

<http://arxiv.org/abs/0807.4740>

Multivariable Bessel polynomials related to the hyperbolic Sutherland model  
with external Morse potential

Authors: [Martin Hallnäs](#)

Subjects: Quantum Algebra (math.QA); Mathematical Physics (math-ph);  
Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0807.0540>

On exponentials of exponential generating series

Authors: [Roland Bacher](#) (IF)

Comments: 20 pages

Subjects: Number Theory (math.NT); Combinatorics (math.CO)

<http://arxiv.org/abs/0807.1181>

On the moments of the Riemann zeta-function in short intervals

Authors: [Aleksandar Ivić](#)

Comments: 10 pages

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.2626>

Instant Evaluation and Demystification of  $\zeta(n), L(n, \chi)$  that Euler, Ramanujan  
Missed - II

Authors: [Vivek V.Rane](#)

Comments: 12 pages. Continuation of [arXiv:0801.0884](#)

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.3148>

Instant Evaluation and Demystification of  $\zeta(n), L(n, \chi)$  that Euler, Ramanujan  
Missed III

Authors: [Vivek V.Rane](#)

Comments: 9 Pages

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.4877>

Rank and crank moments for overpartitions

Authors: [Kathrin Bringmann](#), [Jeremy Lovejoy](#), [Robert Osburn](#)

Comments: 14 pages

Subjects: Number Theory (math.NT); Combinatorics (math.CO)

<http://arxiv.org/abs/0807.0383>

Some Combinatorial Properties of Hook Lengths, Contents, and Parts of Partitions

Authors: [Richard P. Stanley](#)

Comments: 19 pages. Some new material related to work of Fujii, Kanno, Moriyama, and Okada

Subjects: Combinatorics (math.CO)

<http://arxiv.org/abs/0807.1801>

Hook lengths and shifted parts of partitions

Authors: [Guo-Niu Han](#)

Comments: 9 pages

Subjects: Combinatorics (math.CO)

<http://arxiv.org/abs/0807.2128>

Hyperspherical harmonics with arbitrary arguments

Authors: [A.V. Meremianin](#)

Comments: 18 pages, 1 figure

Subjects: Mathematical Physics (math-ph)

<http://arxiv.org/abs/0807.1830>

A rooted-trees  $q$ -series lifting a one-parameter family of Lie idempotents

Authors: [Frédéric Chapoton](#) (ICJ)

Comments: 19 pages, 2 figures

Subjects: Quantum Algebra (math.QA)

<http://arxiv.org/abs/0807.1918>

On the Gaussian  $q$ -Distribution

Authors: [Rafael Diaz](#), [Eddy Pariguan](#)

Comments: 11 pages, 5 figures

Subjects: Probability (math.PR); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0807.1347>

A multimodular algorithm for computing Bernoulli numbers

Authors: [David Harvey](#)

Comments: 13 pages, 1 table, requires algorithm2e package

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.2971>

On the Riesz and Baez-Duarte criteria for the Riemann Hypothesis

Authors: [Jerzy Cislo](#), [Marek Wolf](#)

Comments: Partly based on [arXiv:math.NT/0607782](http://arxiv.org/abs/math.NT/0607782), most of proofs changed, new figures. Some of the research results have been extracted and various new results added. New conjecture is formulated at the end

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0807.4814>

Universality in the two matrix model: a Riemann-Hilbert steepest descent analysis

Authors: [Maurice Duits](#), [Arno B.J. Kuijlaars](#)

Comments: 73 pages, 7 figures  
Subjects: Mathematical Physics (math-ph)

<http://arxiv.org/abs/0808.3615>

The action of Hecke operators on hypergeometric functions

Authors: [Victor H. Moll](#), [Sinai Robins](#), [K. Soodhalter](#)

Subjects: Number Theory (math.NT); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0808.2605>

Differential Reduction Algorithms for the All-Order Epsilon Expansion of Hypergeometric Functions

Authors: [S.A. Yost](#), [M.Yu. Kalmykov](#), [B.F.L. Ward](#)

Subjects: High Energy Physics - Phenomenology (hep-ph); High Energy Physics - Theory (hep-th); Mathematical Physics (math-ph); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0808.0571>

A Proof of George Andrews' and Dave Robbins' q-TSPP Conjecture (modulo a finite amount of routine calculations)

Authors: [Manuel Kauers](#), [Christoph Koutschan](#), [Doron Zeilberger](#)

Subjects: Combinatorics (math.CO)

<http://arxiv.org/abs/0808.1976>

Deformed quantum mechanics and q-Hermitian operators

Authors: [A. Lavagno](#)

Comments: 10 pages

Journal-ref: J. Phys. A: Math. Theor. 41 (2008) 244014

Subjects: Mathematical Physics (math-ph); Statistical Mechanics (cond-mat.stat-mech); Nuclear Theory (nucl-th); Quantum Physics (quant-ph)

<http://arxiv.org/abs/0808.0467>

Fourier Series Of the Derivatives of Hurwitz and Lerch Zeta Functions

Authors: [Vivek V.Rane](#)

Comments: 9 pages

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0808.1442>

SO(3)-Donaldson invariants of  $CP^2$  and Mock Theta Functions

Authors: [Andreas Malmendier](#), [Ken Ono](#)

Comments: 44 pages

Subjects: Differential Geometry (math.DG); High Energy Physics - Theory (hep-th); Number Theory (math.NT)

<http://arxiv.org/abs/0808.1493>

On Jordan type inequalities for hyperbolic functions

Authors: [R. Klen](#), [M. Lehtonen](#), [M. Vuorinen](#)

Comments: 14 pages

Subjects: Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0808.1965>

Nonstandard Mathematics and New Zeta and L-Functions

Authors: [Benjamin Clare](#)

Comments: Ph.D. Thesis, University of Nottingham, 2007, 163 pages

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0808.3486>

On functions of Jacobi-Weierstrass (I) and equation of Painleve

Authors: [Yu.V.Brezhnev](#)

Comments: In Russian; 33 pages; 1 figure

Subjects: Classical Analysis and ODEs (math.CA); High Energy Physics - Theory (hep-th); Mathematical Physics (math-ph); Dynamical Systems (math.DS)

<http://arxiv.org/abs/0808.1770>

Superharmonic Perturbations of a Gaussian Measure, Equilibrium Measures and Orthogonal Polynomials

Authors: [F. Balogh](#), [J. Harnad](#)

Comments: CRM preprint, 28 pages

Subjects: Mathematical Physics (math-ph); Complex Variables (math.CV)

<http://arxiv.org/abs/0808.3499>

Differential systems with Fuchsian linear part: correction and linearization, normal forms and multiple orthogonal polynomials

Authors: [Rodica D. Costin](#)

Comments: 24 pages

Subjects: Classical Analysis and ODEs (math.CA); Dynamical Systems (math.DS)

<http://arxiv.org/abs/0808.0982>

$q$ -Discrete Painlevé equations for recurrence coefficients of modified  $q$ -Freud orthogonal polynomials

Authors: [Lies Boelen](#), [Christophe Smet](#), [Walter Van Assche](#)

Comments: 16 pages, 4 figures. Accepted, to appear in Journal of Difference Equations and Applications

Subjects: Classical Analysis and ODEs (math.CA); Mathematical Physics (math-ph)

<http://arxiv.org/abs/0808.1256>

Bulk asymptotics of skew-orthogonal polynomials for quartic double well potential and universality in the matrix model

Authors: [Saugata Ghosh](#)

Comments: 6 pages

Subjects: Mathematical Physics (math-ph)

<http://arxiv.org/abs/0808.1642>

Exactly Solvable Potentials and Romanovski Polynomials in Quantum Mechanics

Authors: [D. E. Alvarez-Castillo](#)

Comments: 72 pages, 45 figures, Master Thesis, March 2007

Subjects: Mathematical Physics (math-ph); Quantum Physics (quant-ph)

<http://arxiv.org/abs/0808.1829>

Note on the Euler Numbers and Polynomials

Authors: [Taekyun Kim](#)

Comments: 7 pages

Journal-ref: Advanced Studies in Contemporary Mathematics, Vol 17 no.2(2008), p. 109-116

Subjects: Number Theory (math.NT)

<http://arxiv.org/abs/0808.2289>

Factorization Method for d-Dimensional Isotropic Harmonic Oscillator and the Generalized Laguerre Polynomials

Authors: [Metin Arik](#), [Melek Baykal](#), [Ahmet Baykal](#)

Comments: 9 pages, 1 figure

Subjects: Mathematical Physics (math-ph)

<http://arxiv.org/abs/0808.2635>

The Laguerre polynomials preserve real-rootedness

Authors: [Steve Fisk](#)

Comments: to appear, American Mathematical Monthly

Subjects: History and Overview (math.HO); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0808.3614>

Circular Digraph Walks, k-Balanced Strings, Lattice Paths and Chebychev Polynomials

Authors: [Evangelos Georgiadis](#), [David Callan](#), [Qing-Hu Hou](#)

Comments: 12 pages, 1 figure, 2 tables. Submitted.Accepted

Journal-ref: The Electronic Journal of Combinatorics 15 (2008), #R108

Subjects: Combinatorics (math.CO)

<http://arxiv.org/abs/0808.3972>

Stability of roots of polynomials under linear combinations of derivatives

Authors: [Branko Ćurgus](#), [Vania Mascioni](#)

Comments: 18 pages, 4 figures

Subjects: Complex Variables (math.CV); Classical Analysis and ODEs (math.CA)

<http://arxiv.org/abs/0808.0640>

Criteria equivalent to the Riemann Hypothesis

Authors: [J. Cislo](#), [M. Wolf](#)

Comments: It is not compressed to six pages version of the talk delivered by M.W. during the XXVII Workshop on Geometrical Methods in Physics, 28 June -- 6 July, 2008, Bia{\l}owie{\c{z}}a, Poland. New Fig.1 is included

Subjects: Number Theory (math.NT); General Mathematics (math.GM)

## Topic #11 ----- OP-SF NET 15.5 ----- September 15, 2008

From: OP-SF NET Editors  
Subject: About the Activity Group

The SIAM Activity Group on Orthogonal Polynomials and Special Functions consists of a broad set of mathematicians, both pure and applied. The Group also includes engineers and scientists, students as well as experts. We have around 140 members scattered about in more than 20 countries. Whatever your specialty might be, we welcome your participation in this classical, and yet modern, topic. Our WWW home page is:

<http://math.nist.gov/opsf/>

This is a convenient point of entry to all the services provided by the Group. Our Webmaster is Bonita Saunders ([bonita.saunders@nist.gov](mailto:bonita.saunders@nist.gov)).

The Activity Group sponsors OP-SF NET, which is transmitted periodically by SIAM. It is provided as a free public service; membership in SIAM is not required. The OP-SF Net Editors are Diego Dominici ([dominicd@newpaltz.edu](mailto:dominicd@newpaltz.edu)) and Martin Muldoon ([muldoon@yorku.ca](mailto:muldoon@yorku.ca)).

To receive the OP-SF NET, send your name and email address to [poly-request@siam.org](mailto:poly-request@siam.org).

Back issues can be obtained at the WWW addresses:

<http://staff.science.uva.nl/~thk/opsfnet>  
<http://www.math.ohio-state.edu/JAT/DATA/OPSFNET/opsfnet.html>  
<http://cio.nist.gov/esd/emaildir/lists/opsfnet/maillist.html>

For several years the Activity Group sponsored a printed Newsletter, most recently edited by Rafael Yanez. Back issues are accessible at:  
<http://www.mathematik.uni-kassel.de/~koepf/siam.html>

Given the widespread availability of email and the Internet, the need for the printed Newsletter has decreased. Discussions are underway concerning whether an annual printed Newsletter or Annual Report should be instituted.

SIAM has several categories of membership, including low-cost categories for students and residents of developing countries. For current information on SIAM and Activity Group membership, contact:

Society for Industrial and Applied Mathematics  
3600 University City Science Center  
Philadelphia, PA 19104-2688 USA  
phone: +1-215-382-9800  
email: [service@siam.org](mailto:service@siam.org)  
WWW : <http://www.siam.org>  
<http://www.siam.org/membership/outreachmem.htm>

Finally, the Activity Group operates an email discussion group, called OP-SF Talk. To subscribe, send the email message

subscribe opsftalk Your Name

to listproc@nist.gov. To contribute an item to the discussion, send email to opsftalk@nist.gov. The archive of all messages is accessible at:  
<http://math.nist.gov/opsftalk/archive>

## **Topic #12 ----- OP-SF NET 15.5 ----- September 15, 2008**

From: OP-SF NET Editors  
Subject: Submitting contributions to OP-SF NET

To contribute a news item to OP-SF NET, send email to poly@siam.org with a copy to one of the OP-SF Editors [dominicd@newpaltz.edu](mailto:dominicd@newpaltz.edu) or [muldoon@yorku.ca](mailto:muldoon@yorku.ca) . Contributions to OP-SF NET 15.6 should be sent by November 1, 2008.

OP-SF NET is a forum of the SIAM Activity Group on Special Functions and Orthogonal polynomials. We disseminate your contributions on anything of interest to the special functions and orthogonal polynomials community. This includes announcements of conferences, forthcoming books, new software, electronic archives, research questions, job openings.

Send submissions to: [poly@siam.org](mailto:poly@siam.org)  
Subscribe by mailing to: [poly-request@siam.org](mailto:poly-request@siam.org)  
or to: [listproc@nist.gov](mailto:listproc@nist.gov)

Back issues can be obtained at the WWW addresses:  
<http://staff.science.uva.nl/~thk/opsfnet>  
<http://www.math.ohio-state.edu/JAT/DATA/OPSFNET/opsfnet.html>  
<http://math.nist.gov/opsfnet/archive>

WWW home page of this Activity Group:  
<http://math.nist.gov/opsf/>

Information on joining SIAM and this activity group: [service@siam.org](mailto:service@siam.org)

The elected Officers of the Activity Group (2008-2010) are:

Francisco J. Marcellán , Chair  
Peter A. Clarkson, Vice Chair  
Daniel W. Lozier, Secretary  
Peter A. McCoy, Program Director

The appointed officers are:

Diego Dominici, OP-SF NET co-editor  
Martin Muldoon, OP-SF NET co-editor  
Bonita Saunders, Webmaster